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10/820,822	04/09/2004	Hae-Kyoung Kim	61610134US	8493

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EXAMINER	
WANG, EUGENIA	

ART UNIT	PAPER NUMBER
1795	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATENT@PARK-LAW.COM

Office Action Summary	Application No.	Applicant(s)	
	10/820,822	KIM ET AL.	
	Examiner	Art Unit	
	EUGENIA WANG	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 October 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *1,3,4,6,7,9-20,22 and 23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) *10,12,14,16 and 23* is/are allowed.

6)☐ Claim(s) *1, 3, 4, 5, 7, 11, 13, 15, 17-19, and 22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. In response to the amendment received October 13, 2008:

a. Claims 1, 3, 4, 6, 7, 9-20, 22, and 23 are pending.

b. The previous claim objections have been withdrawn in light of the amendment.

c. The previous rejection has been maintained, thus the action is final.

Claim Rejections - 35 USC § 102

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claim 17 is rejected under 35 U.S.C. 102(e) as being anticipated by US 6890674 (Beckmann et al.).

As to claim 17, Beckmann et al. teach the use of Nafion, which expands (changes volume) relative to methanol concentration is used as a switch, valve, or sensor in a fuel cell (col. 8, lines 7-25). It is shown in fig. 7A and 7B that the sensor film is on a substrate. Fig. 8 depicts the sensor embodiment having a conductor [70] fastened to Nafion material [72]. The sensor embodiment of Nafion communicates a concentration level of methanol (thus outputting a signal) (col. 8, lines 37-38). The Nafion conductor displays such a signal via known resistance values, wherein relaxed and strained Nafion have different resistance values. Beckmann et al. embodies an electrical signal, as it is listed that the sensor embodied in fig. 8 has a current running through the conductor and that a Wheatstone bridge circuit may be used to determine

such a resistance (col. 8, lines 37-51 and col. 8, 61-67). Since the methanol concentration affects the relax and strain in Nafion, it thus sends the resistance values in comparison to known values. In this manner, a signal is output with respect to an expansion coefficient. These signals sent correspond to values that can be interpreted as both within and not within a defined reference range (barring clear definition of what constitutes a reference range). Furthermore, Beckmann et al. teach that Nafion expansion and resistance are both proportional to methanol concentration (col. 8, lines 57-60). Accordingly, a reference range with respect to resistance inherently corresponds to a reference range of expansion coefficients of the sensor film. Additionally, the sensor as taught by Beckmann et al. would be capable of sending out a signal when an expansion coefficient of the sensor is not within a reference range of expansion coefficients of the sensor film, as it outputs signals with respect to the expansion of Nafion (see the second embodiment in col. 8).

It has been held that the recitation of an element is "capable" of performing a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchinson*, 69 USPQ 138.

While intended use recitations and other types of functional language cannot be entirely disregarded. However, in apparatus, article, and composition claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference

as compared to the prior art. In re Casey, 370 F.2d 576, 152 USPQ 235 (CCPA 1967); In re Otto, 312 F.2d 937, 938, 136 USPQ 458, 459 (CCPA 1963).

Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. In re Danly, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). See also MPEP § 2114.

The manner of operating the device does not differentiate an apparatus claim from the prior art. A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

Lastly, it is noted that, since the electrical signal (the resistance, which corresponds to the use of a conductor with current running through it, which can be monitored by a circuit) of Beckmann et al. is based on (consists of) a Nafion sensor which expands (increases in volume) with respect to the fuel concentration (see col. 8, lines 8-25), the signal in Beckman et al.'s system is inherently based on a variable input consisting of the concentration of the fuel and the volume of the sensor film, since the volume of the sensor film is related to the concentration of methanol.

Where applicant claims a composition in terms of a function, property or characteristic and the composition of the prior art is the same as that of the claim but the function is not explicitly disclosed by the reference, the examiner may make a rejection under both 35 U.S.C. 102 and 103, expressed as a 102/103 rejection.

The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. In re Rijckaert, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993).

"In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." Ex parte Levy, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990)

In the case of the instant application the basis for expectation of inherency is that since the electrical signal of resistance (as taught by Beckmann et al.) is dependent on the volume of the Nafion, which in turn is dependent the concentration of the methanol fuel (col. 8, lines 8-25 and 37-60). Therefore, since the signal is dependent on the volume, which is related to the concentration, the signal of Beckmann et al. is based on (consists of) the input parameters of both volume of the sensor film and concentration of the film.

The Examiner requires applicant to provide that the prior art products do not necessarily or inherently possess the characteristics of his [or her] claimed product.

Whether the rejection is based on inherency' under 35 U.S.C. 102, on prima facie obviousness' under 35 U.S.C. 103, jointly or alternatively, the burden of proof is the same...[footnote omitted]." The burden of proof is similar to that required with respect to product-by-process claims. In re Fitzgerald, 619 F.2d 67, 70, 205 USPQ 594, 596 (CCPA 1980) (quoting In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977)).

4. Claim 18 is rejected under 35 U.S.C. 102(e) as being anticipated by Beckmann et al. as evidenced by US 2003/0091887 (Ihonen et al.) and DuPont – Nafion Membranes and Dispersions.

As to claim 18, Nafion (the material taught by Beckmann et al.) is proton conducting polymer (as evidenced by Ihonen et al. (para 0003) and Nafion Membranes and Dispersions).

Response to Arguments

5. Applicant's arguments filed October 13, 2008 have been fully considered but they are not persuasive.

Applicant argues (with respect to claim 17) that the claim language states that the variable input *consists* of (1) the concentration of the fuel, and (2) the volume of the sensor film, whereas Beckmann et al.'s variable input consists of (1) the concentration of methanol in a methanol solution, (2) the expansion of Nafion, and (3) the resistance of a conductor fastened to the Nafion.

Examiner respectfully disagrees with Applicant's position and submits that perhaps Applicant has misinterpreted Examiner's interpretation. As stated in the rejection, and reiterated herein for clarity's sake, although resistance is used, the resistance value is based off of the expansion of Nafion. Accordingly, the input itself is with respect to the Nafion expansion (volume), as the resistance is just a measure of the expansion. And thus, it is interpreted that the only inputs are with respect to the concentration of the methanol and the expansion of Nafion (since the measured resistance portion is based off of the Nafion expansion, the input variable with respect to

resistance is actually Nafion expansion (col. 8, lines 52-60)). With such an interpretation, Beckmann et al. does teach that "the electrical signal is determined based on a variable input consisting of the concentration of the fuel and the volume of the sensor film." Applicant has not given any proof or reasoning as to how the variable input associated with the resistance is not the expansion of Nafion, as set forth in the claim interpretation. Accordingly, the arguments are not found to be persuasive, and the rejection of record is maintained.

Applicant argues that one of ordinary skill in the art would not interpret the phrase "consisting of" to mean "based on," as "consisting of" excludes any element, step, or ingredient not specified in the claim.

Examiner respectfully disagrees and submits that Applicant is reading the claim language too narrowly. Although consisting language is used, the consisting is with respect to the variable input. As set forth above in this section (above) and within the rejection, it is interpreted that the resistance (as used by Beckmann et al.) is dependent on volume, and thus the variable input associated with the resistance measurement is volume of the Nafion sensor. Accordingly, the resistance itself does not constitute a variable input. The use of it (resistance) actually corresponds to Nafion expansion (due to concentration of methanol), and thus fuel concentration and Nafion expansion (volume) are the only two variables input, as resistance is not seen to be a variable input. Examiner is unsure how one of ordinary skill in the art would not be able to apply such an interpretation to the claim language. Office personnel are to give claims their broadest reasonable interpretation in light of the supporting disclosure. *In re Morris*, 127

F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Also, limitations appearing in the specification but not recited in the claim are not read into the claim. See *In re Zletz*, 893F.2d 319, 321-22,13 USPQ2d, 1320, 1322 (Fed. Cir. 1989). Accordingly, the arguments are not found to be persuasive, and the rejection of record is maintained.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 1, 3, 4, 6, 7, 9, 11, 13, 15, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6303244 (Surampudi et al.) in view of Beckmann et al.

As to claim 1, Surampudi et al. discloses a direct methanol feed fuel cell system. The system is composed of a fuel cell stack [924], a methanol fuel storage tank [900], a circulating tank [906], condensers [940, 942] (which acts as a diluent storage unit that stores only a diluent that is a byproduct of the chemical reaction in the fuel cell stack, wherein the diluent comprises water (col. 18, lines 31-39), and a methanol concentration sensor that provides input to a controller to regulate the fuel cell system (col. 18 lines 5-19; See Figure 9). The fuel cell stack is comprised of an anode and cathode and generates electrical energy (col. 3 lines 25-32).

Surampudi et al. does not disclose that the sensor comprises a sensor film or sensor member that changes volume thereof depending on the concentration of the fuel, wherein the signal is determined based on a variable input consisting of the concentration of the fuel and volume of the sensor film.

Beckmann et al. teaches a method and apparatus for managing fluids in a fuel cell system. Beckmann teaches the use of various devices to control fuel concentration in a direct oxidation fuel cell system such as a direct methanol fuel cell (col. 1 lines 39-42; col. 2 line 63 to col. 3 line 4). One device for determining the concentration of the fuel is a sensor (col. 3 lines 50-62). The sensor is constructed of Nafion™ (serves as sensor film and sensor member), wherein Nafion™ expands or varies in volume when exposed to a methanol solution (col. 8 lines 8-16). The amount of expansion experienced by the Nafion™ is directly related to the concentration of methanol fuel. The amount Nafion™ expands is predictable and essentially linear over the relevant methanol concentrations (col. 8 lines 21-25). Therefore, the sensor embodiment of Nafion communicates a concentration level of methanol (thus outputting a signal) (col. 8, lines 37-38). The Nafion conductor displays such a signal via known resistance values, wherein relaxed and strained Nafion have different resistance values. Lastly, it is noted that, since the signal (which corresponds to the resistance) of Beckmann et al. is based on (consists of) a Nafion sensor which expands (increases in volume) with respect to the fuel concentration (see col. 8, lines 8-25), the signal in Beckman et al.'s system is inherently based on a variable input consisting of the concentration of the fuel and the volume of the sensor film, since the volume of the sensor film and concentration of methanol are related.

Where applicant claims a composition in terms of a function, property or characteristic and the composition of the prior art is the same as that of the claim but

the function is not explicitly disclosed by the reference, the examiner may make a rejection under both 35 U.S.C. 102 and 103, expressed as a 102/103 rejection.

The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. In re Rijckaert, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993).

"In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." Ex parte Levy, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990)

In the case of the instant application the basis for expectation of inherency is that since the electrical signal of resistance (as taught by Beckmann et al.) is dependent on the volume of the Nafion, which indicates the concentration of the methanol fuel (col. 8, lines 8-25 and 37-60). Therefore, since the signal is dependent on the volume, which is related to the concentration, the signal of Beckmann et al. is based on (consists of) the input parameters of both volume of the sensor film and concentration of the film.

The Examiner requires applicant to provide that the prior art products do not necessarily or inherently possess the characteristics of his [or her] claimed product.

Whether the rejection is based on inherency' under 35 U.S.C. 102, on prima facie obviousness' under 35 U.S.C. 103, jointly or alternatively, the burden of proof is the same...[footnote omitted]." The burden of proof is similar to that required with respect to product-by-process claims. In re Fitzgerald, 619 F.2d 67, 70, 205 USPQ 594, 596

(CCPA 1980) (quoting In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977)).

The motivation to use the concentration sensor is to accurately measure and control the methanol concentration provided to the fuel cell. Furthermore, one of ordinary skill in the art would have been able to appreciate the use of the concentration sensor as taught by Beckmann et al. in the system of Surampudi et al. with reasonable expectation of success. Therefore it would have been obvious to one having ordinary skill in the art at the time the claimed invention was made to modify the system of Surampudi et al. to include Nafion™ (a material that varies in volume depending on the concentration of the methanol solution to which it is exposed) as taught by Beckmann et al. in order to accurately measure and control the methanol concentration provided to the fuel cell, as one of ordinary skill in the art would have appreciated the changing of methanol sensors with reasonable expectation of success.

As to claim 3, Surampudi et al. teach of a fuel mixing unit (circulation tank [906]). Circulation tank [906] is a fuel mixing unit, as it allows the diluent from condenser [940, 942] to flow into it as well as methanol from the fuel storage unit (methanol tank [900]).

As to claim 4, Surampudi et al. teaches that the methanol sensor should be located in the methanol fuel or very close to the methanol fuel (col. 18 lines 14-15).

As to claim 6, Surampudi et al. teach a line between the fuel storage unit (methanol tank [900]) and the diluent storage unit (condensers [940, 942]). This line is [918], and it supplies the fuel mixture to the fuel cell stack (fig. 9).

As to claim 7, Surampudi et al. show sensor [916] is located in line [918] (fig. 9).

As to claim 9, the combination of Surampudi et al. with Beckmann et al. teaches that the sensor comprises a substrate and a sensor film attached to a surface of the substrate, since Beckmann et al. teach the sensor film is on a substrate, as shown in fig. 7A and 7B.

As to claim 13, Beckmann et al. teaches a sensor using Nafion embodied in fig. 8. In this embodiment, the sensor is an electronic circuit that outputs signals depending on the change in the volume sensor. This is done as Nafion communicates a concentration level of methanol (col. 8, lines 37-38). The Nafion conductor displays such a signal via known resistance values, wherein relaxed and strained Nafion have different resistance values. These signals sent are in some way electronic, as the sensor is an electronic circuit (fig. 8; col. 8, lines 37-67).

As to claim 22, Beckmann et al.'s yields the control system claimed. Fig. 8 depicts the sensor embodiment having a conductor [70] fastened to Nafion material [72] (sensor film). The sensor embodiment of Nafion communicates a concentration level of methanol (thus outputting a signal) (col. 8, lines 37-38). The Nafion conductor displays such a signal via known resistance values, wherein relaxed and strained Nafion have different resistance values. The methanol concentration affects this and thus sends the resistance values in comparison to known values. In this manner, a signal is output with respect to an expansion coefficient. These signals sent correspond to values that can be interpreted as both within and not within a defined reference range (barring clear definition of what constitutes a reference range). Furthermore, Beckmann et al. teach that Nafion expansion and resistance are both proportional to methanol concentration

(col. 8, lines 57-60). Accordingly, a reference range with respect to resistance inherently corresponds to a reference range of expansion coefficients of the sensor film. Additionally, the sensor as taught by Beckmann et al. would be capable of sending out a signal when an expansion coefficient of the sensor is not within a reference range of expansion coefficients of the sensor film, as it outputs signals with respect to the expansion of Nafion (see the second embodiment in col. 8).

It has been held that the recitation of an element is "capable" of performing a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchinson,* 69 USPQ 138.

While intended use recitations and other types of functional language cannot be entirely disregarded. However, in apparatus, article, and composition claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. In re Casey, 370 F.2d 576, 152 USPQ 235 (CCPA 1967); In re Otto, 312 F.2d 937, 938, 136 USPQ 458, 459 (CCPA 1963).

Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. In re Danly, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). See also MPEP § 2114.

The manner of operating the device does not differentiate an apparatus claim from the prior art. A claim containing a "recitation with respect to the manner in which a

claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

7. Claims 11 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Surampudi et al. in view of Beckmann et al., as applied to claims 1 and 9, as evidenced by Ihonen et al. and DuPont – Nafion Membranes and Dispersions.

As to claims 11 and 15, Nafion (the material taught by Beckmann et al.) is proton conducting polymer that is a perfluorinated sulfonic acid polymer (as evidenced by Ihonen et al. (para 0003) and Nafion Membranes and Dispersions).

8. Claim 19 rejected under 35 U.S.C. 103(a) as being unpatentable over Beckmann et al., as applied to claim 17, in view of Surampudi et al.

With respect to claim 19, Beckmann et al. teaches the use of Nafion as the sensor but does not teach the use of polystyrene sulfonic acid, poly ether ether sulfone sulfonic aced, sulfonated polyolefin, or sulfonated polysulfone as the polymeric ion exchange membrane in the sensor.

Surampudi et al. demonstrates that Nafion and polyethylene and polypropylene sulfonic acids (sulfonated polyolefins) and polystyrene sulfonic acids are function equivalents within the use of a fuel cell (col. 6, lines 55-57). Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to substitute the Nafion of the sensor of Beckmann et al. with sulfonated polyolefins or polystyrene sulfonic acids, as taught by Surampudi et al., with predictable result of

obtaining a sensor that functioned in the same manner. It has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin,* 125 USPQ 416.

Response to Arguments

9. Applicant's arguments filed October 13, 2008 have been fully considered but they are not persuasive.

Applicant argues (with respect to claim 1) that, like Beckmann et al. does not teach that the variable input *consists* of the concentration of the fuel and volume of the sensor, specifically noting that such arguments as applied to claim 17 apply to claim 1 as well, and thus Surampudi et al. in view of Beckmann et al. does not teach all of the claim limitations.

Examiner respectfully disagrees. Examiner's position with respect to such arguments have been fully address in Section 5 (Response to Arguments). The position is not reiterated herein for brevity's sake. However, Examiner would like to direct Applicant's to Section 5 for clarification on how Beckmann et al. does teach that the variable input consists of the concentration of the fuel and volume of the sensor, which is incorporated herein, as applied to claim 1. Furthermore, it is noted that Applicant does not argue how the combination of Surampudi et al. and Beckmann et al. is not proper, or how the combination fails to teach a feature (other than with respect to what the variable input consists of). Therefore, Examiner maintains the obviousness, as set forth above, and upholds the rejection.

With respect to the arguments regarding the 103 rejections (with respect to claim 19), Applicant argues that the prior art used to obviate the rejected claims (Surampudi et al.) do not cure the deficiencies of the primary reference (Beckmann et al.). Applicant does not argue how the combination is not proper. Therefore, the Examiner maintains the obviousness rejections and upholds the rejection of the primary reference, as above.

Allowable Subject Matter

10. Claims 10, 12, 14, 16, 20, and 23 are allowed.

In the non-final office action mailed on October 29, 2007, Examiner has already set for the reasons for allowance of claims 10 and 20. Since claims 12, 14, 16, and 23 are dependent on claim 10, they are allowable for the same reasons.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to EUGENIA WANG whose telephone number is (571)272-4942. The examiner can normally be reached on 7 - 4:30 Mon. - Thurs., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/E. W./
Examiner, Art Unit 1795

/PATRICK RYAN/
Supervisory Patent Examiner, Art Unit 1795